Course Overview
HCI Design I • Fall 2002

It is good to have an end to journey toward; but it is the journey that matters, in the end.
—Ursula K. Le Guin

Description
Human-computer interaction design (HCID) describes the way a person or group accomplishes tasks with a computer—what the individual or group does and how the computer responds; what the computer does and how the individual or group responds. Sometimes known as “interface design,” HCID becomes increasingly important as computing intelligence and connectivity spread ubiquitously to home, work, and play environments. In fact, it is now generally recognized that the nature, quality, and value of human-computer interactions are considerations that should be integral to the entire software development process. (For a more comprehensive definition of human-computer interaction, see p. 58-66.)

This course will be organized around a collection of readings and three design projects concerned with applying human-computer interaction principles to the design, selection, and evaluation of interactive systems such as web-based sites and tools, hand-held computers, web learning, information portals, security systems, productivity and knowledge management systems, and information appliances.

In simplest terms, this course attempts to be as specific as possible about the major concepts of interaction design, pointing out generalizations across different applications whenever possible. Concepts from other design fields, for example, architecture, instruction, music composition, and dance, are used to gain insight about HCID strategies. A secondary emphasis will be on protocols for team decision making and work flow.

No programming knowledge is required in this course. However, PowerPoint will be used to “mock up” designs. During the first two weeks of the
course, you’ll be expected to learn how to use this tool (through tutorials or references).

The format of this course is problem-centered. The lectures, online discussion forums and other resources will be used to support the problems you are working on throughout the semester. Successful design will require a collaborative effort.

This course includes undergraduate and graduate students. Both will meet at the same time and the course will be taught as one group, with high standards for all—as if you were a new employee at Apple Computer, Microsoft, Cisco Systems, Accenture, or WisdomTools! (I’ve interacted with each of these organizations and worked at two of them.)

**Prerequisites** There are no formal prerequisites and programming skills are not required. Minimally, you should be familiar with e-mail, word processors, and “surfing” on the web. If you’ve worked with graphic packages or authoring tools (e.g., Photoshop, Director, Dreamweaver, Flash, or PowerPoint), that’s good, but it will not be assumed.

**Instructors**

Martin A. Siegel, Ph.D. (1973, University of Illinois)
Professor of Education, Instructional Systems Technology
Professor of Informatics and Director,
Human-Computer Interaction Program, School of Informatics
Founder, Chairman, and Chief Learning Officer, WisdomTools, Inc.

Eli Blevis, Ph.D. (1990, Queen’s University at Kingston, Canada)
Assistant Professor, School of Informatics

**Offices**

Dr. Siegel: Education 2238
Dr. Blevis: Memorial 406

**Telephone**

Dr. Siegel: 856-8215
Dr. Blevis: 856-3104

**E-mail Addresses**

msiegel@indiana.edu
eblevis@indiana.edu
Mentors

Student mentors will help guide you in this course. Their primary role is to assist teams in the development and evaluation of your projects. The HCID 2002 mentors are:

Chad Armstrong cwarmstr@indiana.edu [2nd time mentor!]
Ana Correia acorreia@indiana.edu [2nd time mentor!]
Richie Hazelwood* whazlewo@indiana.edu
Matt Hotell mhottell@indiana.edu
Junghun Lee leejun@indiana.edu
Megan Lewis meblewis@indiana.edu
Shijuan Liu shijliu@indiana.edu
Josh Moline* jmoline@indiana.edu
Li-Chu Sung lisung@indiana.edu
Mohamed Yusuf myusuf@indiana.edu

To become a mentor in 2003, you must receive an A in the course and rank in the upper 25% of the class. This is an unpaid position, although it is impressive on your résumé!

* Richie and Josh are Assistant Instructors (AIs) as well. They will perform some additional administrative functions.

Office hours

Please send e-mail to make an appointment. Our schedules are flexible; we usually can find a time that does not conflict with your schedule. On most days, the instructor will be available immediately after class as well.

Projects

Three design projects will be assigned throughout the semester. These will be graded and will comprise 65% of your final grade (650 out of 1000 points). For each project, you will be required to work with a team of three other students. For the first project, team members will be assigned; for subsequent projects, you will keep the same team.

NOTE: If there is anyone in the class that you do not wish to be your teammate, send an e-mail to Siegel as soon as possible with this person’s name. This information will be confidential. Do not send Siegel names of people you wish to have as teammates; these notes will be ignored.

There are advantages of having the same team across the three projects: the team becomes more efficient over time; the team gets to know each person’s strengths and weaknesses; and team bonding can occur. There can be disadvantages too: if there are team disagreements or personality conflicts, they could be sustained throughout all three projects. However, if there are problems, like in “the real world,” these problems need to get resolved. You can’t simply think, “Oh well, this will go away in two more weeks and I’ll never have to work with this person again.”
In real companies you don’t usually pick your team members; they’re assigned to you. In real companies, you will need to work with people from different cultures, religions, countries, and so on. If problems develop, seek help early from the instructors. This is the time to learn how to act as a professional. Expectations are high.

Each team should designate a facilitator for each project; however, no student should take on the role of facilitator more than once. The facilitator coordinates the activities of the team, assists team discussions, insures that all points of view are heard, and submits the final documents and files. Most importantly, the facilitator insures that team decision-making protocols are followed.

**A project that is turned in late (after 4 P.M. on the due date) will not receive a grade higher than B. Moreover, the last date for turning in a project is the start of the next class session.**

Collaboration

Collaboration is at the heart of interaction design. Professionally developed designs are developed by a project team. Learning collaborative, interpersonal skills is critical to your success. This is unlike many school experiences where individual work is valued most.

Upon completion of each project, you will evaluate each team member, including yourself, along six dimensions:

- **Attendance**: Did this person attend every meeting from beginning to end?

- **Participation**: Within cultural expectations, did this person speak up when necessary, consider other points of view, and help bring debate to a resolution?

- **Load**: Did this person do more or less work than the average person in the team? (Ideally, everyone in the team will do an equal share of the work.)

- **Dependability**: Did this person deliver all that was promised on time?

- **Accountability**: Did this person implement team protocols to insure individual and group success? (These protocols will be described later in the semester.)

- **Overall**: What are your overall comments on this person?
These evaluations will comprise 18% of your final grade (180 points). Unlike other team projects you may have experienced, where one or two people tend to “carry the load” for the entire team, HCID designers will hold you accountable for your participation.

Required Readings

Two books are required for the course:


  Accompanying the text is a website: http://www.ID-Book.com

- Martin Siegel. (2002). *HCID 1*.
  This is available at Collegiate copies, 1434 E. Third Street (near 3rd and Jordan). Ask for the course packet for 1590.

In addition, some readings will be posted on SiteScape Forum (see below). They will appear in PDF format, thus can read these online or print them for your convenience (you’ll need *Adobe Acrobat Reader*, free software).

Online Forum

Extending the classroom conversations and providing a place for class announcements and the discussion of readings, we will be using *SiteScape Forum* (SSF), accessed from your web browser. Enter site:

http://ssf.indiana.edu/msiegel

You will need a login name and password. Your login name is your Indiana University e-mail name (e.g., jmoline). Your temporary password is your nine-digit social security number (without the hyphens). As soon as you’ve entered SSF, you should change your password:

Select your name in the phrase “Welcome Your Name”. Then select the “Modify” icon to modify your profile, including your password.

To learn how to use SSF, enter:

http://ssf.indiana.edu

Then choose the link “Quick Start Help for Students”.

When you are finished with an SSF session, be sure to log out. Select the “Summit” icon and then the “Log Out” icon. Failure to follow this procedure leaves your session open to anyone with access to your browser. Another person could write messages under your name!
You should try to check SSF once a day, but no less than three times a week. Critical information will be posted there on a regular basis. If you own a computer, you might consider setting your home page as “ssf.indiana.edu/msiegel”. This will remind you to enter SSF every time you enter your browser.

Once you are assigned to a team for the project design work, you will be able to use SSF as a place to converse with your team and exchange documents. Only your team members, the mentors and AIs, and the instructors will have access to your team space. That is, other students will not be able to see your work until you post your final submission.

Reflections

The readings are an important part of the course. You may choose one of two methods for reflecting on the readings:

- **Conversation Forum.** You will be assigned to a “conversation group,” and each week you will post comments and engage in an online dialog.

- **Live Discussion.** You will be expected to attend an evening class session for 75 minutes each week. This will be led by Dr. Blevis. The time and date will be announced later in the week.

NOTE: If you are an Informatics graduate student in the HCI Program, you must choose the live discussion.

For those posting in the conversation forum: Each Monday, a discussion probe will be posted in SSF for the week’s reading assignment. By the following Sunday, you must post in SSF a thoughtful response. A thoughtful response is not a summary of the chapter. Rather, a thoughtful response includes several of the following elements:

- provides your point of view
- links to content from the lectures
- links to other articles or resources with which you are familiar
- provides software examples and personal experiences
- relates to one or more of the seven themes of good design
- relates to the design projects

The length of your reaction should be a page or less, often just a paragraph or two. You are encouraged to post more than once each week.

You may create an original note or you may post a reply (or a reply to a reply). The intent of the forum is to engage your fellow students in a rich conversation of HCID issues, reflecting and integrating lectures, articles, examples, and experiences. New and interesting questions may be posed as
well. The forum is for you, although we may post occasional comments or probes (questions to stimulate the conversation). Obviously, the more you participate in a thoughtful manner, the more you will get out of the readings and the course. See SSF for an example posting with replies; these were written last year by HCID students, and represents high quality postings.

These postings will comprise 17% of your final grade (170 points). Half of these points (85 points) will be awarded approximately mid-semester. An “A” student fulfills the “letter and spirit” of the above requirements, each week, on time. You may miss one week of postings during the semester without jeopardizing your grade.

Choose the reflections mode (conversation forum or live discussion) on your “Information Sheet” handout.

Attendance

Class attendance is expected and noticed. We will start promptly at 11:15 A.M. and end at 12:45 P.M. It’s your responsibility to be on time. Arriving late or not at all will have negative impact on your final grade (see below). After the first week of class, you will be expected to sit in the same seat each class session. Find your preferred seat and stay with it throughout the semester.

Sleeping in class or reading non-class materials is not allowed. Come into class ready to work. You need to be “checked in” not “checked out.” If you find yourself feeling drowsy, then quietly leave the room and drink some coffee or splash cold water on your face and then return quietly to the room.

Note: If you are unable to attend class or a team activity because of a religious observance, it is your responsibility to alert the instructor and your team members prior to your absence. Give notice early so we can help you make up the work.

Music

Music plays an important role in this class. Each lecture session begins with a different musical selection, sometimes reflecting the day’s content. Once the music begins, please stop talking. Listen to the design!

Class Format

During the first part of the semester, most class sessions will follow a lecture and demonstration format. On occasion we’ll create in-class mini-designs. Moreover, upon completion of each of the three major design projects, class time will be devoted to project presentations and critiques. The critiques will approximate a critique that a first year designer might receive at Microsoft, Apple, or at any serious software design group.

From time to time we’ll have guest speakers. For the most part they are outside the world of HCID, but they will share design perspectives from their field.
Grades

Final course grades will be determined according to the following formula:

*Each score varies from 0 to 100 points:*

- Project #1 \(= p_{score1} \times 2.00\) or 200 possible points
- Project #2 \(= p_{score2} \times 2.25\) or 225 possible points
- Project #3 \(= p_{score3} \times 2.25\) or 225 possible points
- Collaboration #1 \(= c_{score1} \times 0.60\) or 60 possible points
- Collaboration #2 \(= c_{score2} \times 0.60\) or 60 possible points
- Collaboration #3 \(= c_{score3} \times 0.60\) or 60 possible points
- Forum score #1 \(= f_{score1} \times 0.85\) or 85 possible points
- Forum score #2 \(= f_{score2} \times 0.85\) or 85 possible points

Total \(= 1000\) possible points

Negative Classroom Points \(= – 0\) points

Magic Points \(= + 0\) points

You can access your “up to the moment” grades at the Post’Em site:

https://www.indiana.edu/~best/cgi-bin/postem/students.pl

These will be available in about a week or two after the start of the semester. The link will be in SSF as well.

+ and – Points

From time to time, a “magic point” will be awarded upon the completion of a special activity. This point will be added to your overall score. At least 15 magic points will be announced throughout the semester. If you earn a magic point, a 9-digit alphanumeric code will be given to you. You will enter this code online and a point will be added to your point total in Post’Em.

Similarly, it’s possible to lose points (“negative classroom point”): lack of classroom participation; obnoxious classroom participation; not showing up for class; arriving late.
Final Grade

Any fractional point in the overall total is rounded up to the next integer; for example, 919.1 is rounded up to 920:

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At the end of the semester, after all grades are calculated, I will lower the 920 point cutoff to insure that at least 40% of the class will receive a final grade of A- or above (assuming this target was not reached already).

Help

Relevant questions are encouraged during and after each class session. If an explanation is unclear, ask for a better explanation.

Mentors have the experience of this course and other related courses. Thus, they are in an excellent position to answer basic questions about the projects and to provide guidance to your design team. However, you should not feel compelled to ask the mentors first; you may seek out the instructors immediately. For interpersonal team problems, consult with one of the instructors as soon as possible.

Feedback

You will be getting a lot of feedback from us. However, we value your feedback too. Please let us know how to make this a more productive learning experience for you. If you wait until the end of the semester to tell us what you didn’t like, it will help the next group of students but it won’t help you.

Sometimes instructors encourage students to meet with them, but students get the impression that they don’t really mean it. These instructors mean it!
First Step

Paul Heckel (1984) in *The Elements of Friendly Software Design*, an early book on human-computer interaction, reminds us that “Movies did not flourish until the engineers lost control to artists—or more precisely, to the communications craftsmen.”

Similarly, this course represents a “first step” in learning to be a human-computer interaction designer, a kind of high tech communications artisan. Like learning any complicated skill, it will take time and practice—lots of it. Nevertheless, by the end of this semester you will be thinking like an interaction designer and viewing the design of software differently.

We expect you to work hard, think hard, and have fun.

We will too!

*Le voyage des mille milles commence avec la première étape.*

*El viaje de mil millas empieza con el primer paso.*

*Uma caminhada de mil milhas começa com um primeiro passo.*

千里之行始于方寸之间

The journey of a thousand miles begins with the first step.

— Chinese proverb
Topics Uncovered

HCI Design I • Fall 2002

It seems rather strange that professors talk about covering topics. Would it not be more appropriate to talk about uncovering topics?

—Robert Turner

The following topics are listed in approximately the order they will be “uncovered”—

- Overview of course
- From the design of everyday things to the design of software
- Old and new design models
- What are mockups and how are they used?
- Seven themes of good design, presented as a whole and then individually throughout the semester
- Good moves and bad moves for starting your design
- The “protocol” for team accountability
- Usability testing
- Thinking like a graphic artist
- Guidelines for critiquing designs
- Thinking like an instructional designer
- Thinking like an architect
- Tools for accelerating insight
- Design affect and design ethics
- Thinking like a (composer, lighting designer, playwright, and/or choreographer)
- Interactive instruction: a case for computer imagination
- Interactive annoyance redesign
• Post-mortem analysis
• The designer’s (addictive) life

Throughout the course, these topics will be interspersed:
• Case Studies: a variety of web and wireless products
• Critiques of Design Projects One, Two, and Three
• Life in the “trenches” as a real interactive designer
• Professionalism
• The philosophy of design
## Timetable

### HCI Design I • Fall 2002

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<th>Week</th>
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<th>Assigned</th>
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<th>Critique</th>
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* Note: Projects 1 and 2 are due at 4 P.M. on these dates. At these times, all materials must be delivered to Siegel's office, room 2238 Education. Work received after this time will be marked “late.”

** Note: Project 3 is due at the start of class on this date. Deliver the materials to the classroom. Work received after this time will be marked “late.”
Learning to Swim, Not Sink

The Talmud is called an ocean. You don’t know the whole ocean—all its depths. We mean by this that if you don’t know how to swim in it, you sink in it.

—Isaac Bashevis Singer

A Information sheet (Handout)
B From the design of everyday things to human-computer interaction design (HCID)

What makes an object useable, attractive, and satisfying?

• doors
• cassette tapes
• catsup packets and bottles
• chewing gum
• tea bags
• floppy disks and diskettes
• letter

C Overview (p. 2-11)
D Topics uncovered (p. 12-13)
E Timetable (p. 14-15)
F SiteScape Forum online system: ssf.indiana.edu/msiegel
Use your IU account name as your login name and “hci” as your password. Be sure to modify your password once you log in.

G Design Project 1 (p. 47-57)

H What’s a mockup? How does it differ from real software?
Use of PowerPoint

* The Talmud is a collection of books containing Jewish law and tradition.